1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DIFFERENCES IN REPELLENT EFFECTIVENESS IN FOUR SPECIES OF TICKS -U-

AUTHOR-(02)-DREMOVA, V.P., SMIRNOVA, S.N.

COUNTRY OF INFO--USSR

SOURCE--JENA, ANGEWANDTE PARASITOLOGIE, VOL 11, NO 2, MAY 1970, PP 104-108.

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TICK, INSECT REPELLENT, QUINOLINE, PHTHALATE, AMIDE, BENZENE DERIVATIVE, QUINOLINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0620 STEP NO--GE/0037/70/011/002/0104/0108

CIRC ACCESSION NO--AP0122730

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0122730

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTIVENESS OF NINE REPELLENTS (BASED ON DIMETHYL PHTHALATE, DIACETYLTOLUAMIDE, KYSOL A (1,ACETYL,1,2,3,4,TETRAHYDROQUINOLINE), CARBOXIDE, BENZIMINE, BUTYL ACENTANILIDE, AN EXPERIMENTAL COMPOUND (RC-28; COMPOSITION NOT STATED), BENZOYLPIPERIDINE, AND DIBUTYL ADIPATE) AGAINST FOUR SPECIES OF IXODID TICKS (IXODES PERSULCATUS, DERMACENTOR PICTUS, DERMACENTOR MARGINATUS, AND HYALOMMA ASIATICUM) WAS INVESTIGATED, AND THE RESULTS WERE EXPRESSED IN TERMS OF RD-90, DENOTING THE DOSAGE REPELLING 90PERCENT OF THE TICKS PRESENT. THE CLEAR CUT DIFFERENCES IN RESPONSE (THE IXODES PERSULCATUS RESPONDING BEST AND THE HYALOMMA ASIATICUM RESPONDING THE LEAST) WERE DISCUSSED. FACILITY: CENTRAL SCIENTIFIC RESEARCH INSTITUTE FOR DISINFECTION.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DYNAMICS OF REMOVAL OF DIETHYLTOLUAMIDE FROM TREATED SKIN -U-

AUTHOR-(03)-MARKINA, V.V., OREMOVA, V.P., KAEMNNOV, N.A.

COUNTRY OF INFO--USSR

SOURCE--MASLO ZHIR. PROM. 1970, 36(2), 30-2

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INSECT REPELLENT, BENZENE DERIVATIVE, AMIDE, SKIN TEST, CELLULOSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0698 STEP NO--UR/9085/70/036/002/0030/0032

CIRC ACCESSION NO--AP0119605
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--23OCT7C

CIRC ACCESSION NO--AP0119605

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EVAPN. OF DIETHYLTOLUAMIDE (I), USED AS AN INSECT REPELLENT, FROM SKIN TREATED WITH COSMETIC PREPNS. CONTG. I WAS EXAMD. THE ADDN. OF FILM FORMING AGENTS OR STABILIZERS, E.G., HYDROXYPROPYL CELLULOSE, SILICONE FLUID (II), AND ET CELLULOSE (III) INCREASED THE RESIDENCE TIME OF I ON THE SKIN. THE BEST RESULTS WERE OBTAINED WITH EMULSION CREAMS CONTG. 20PERCENT I AND II AS FILM FORMING AGENT AND WITH SOAP CREAMS WITH 40PERCENT I AND III AS STABILIZER (25PERCENT I EVAPD. AFTER 6 HR). PHYS. ACTIVITY OF THE INVESTIGATED SUBJECTS INCREASED THE RATE OF I EVAPN. FROM SKIN. GNATS WERE REPELLED WITH A MIN. CONCN. OF 0.14 MG I-1 CM PRIME2 OF SKIN, WHILE FOR MIDGES THE MIN. CONCN. WAS 1.5 MG. FACILITY: MOSK. MYL'NO KOSMET. FABR. SVOBODA. MOSCOW, USSR.

UNCLASSIFIED

2/3 014 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0136722
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A HISTORY OF THE DEVELOPMENT OF AEROMETHODS IN GEOLOGICAL PROSPECTING, LISTING INSTITUTIONS, PERSONALITIES, AND INSTRUMENTS, IS GIVEN. IN 1949, THE VIRG INTRODUCED THE SG-10 AERORADIOMETER, AND LATER DEVELOPED THE ASGM-25, ASG-46, AND ASG-48 AEROGEOPHYSICAL STATIONS FOR SIMULTANEOUS AEROMAGNETIC AND AERORADIOMETRIC SURVEYS. THE ASG-48 INSTRUMENT IS USED TO DETECT CONCENTRATIONS OF URANIUM THORIUM, ETC. IN THE 1950'S, THE AEM-49 FERROSOUND AEROMAGNETOMETERS WERE INTRODUCED. THE MINISTRY OF GEOLOGY THEN INTRODUCED THE AM-13 AND AMM-13 AEROMAGNETOMETERS. THE VNIIGEOFIZIKA DEVELOPED AND INTRODUCED THE PROTON MAGNETOMETER ACCESSORY TO FERROSOUND AEROMAGNETOMETERS. VITR DEVELOPED THE AYAAM-6 PROTON AEROMAGNETOMETER CAPABLE OF MEASURING ABSOLUTE VALUES OF GEOMAGNETIC FIELD FORCE AND, AT PRESENT, IS SUCCESSFULLY TESTING A NEW MODEL PROTON AEROMAGNETOMETER, THE AMP-7, FOR BAUXITE PROSPECTING. A HELICOPTER BORNE AEROELECTROPROSPECTING DEVICE, THE INFINITELY LONG CABLE, WAS INTRODUCED IN 1959. THE AIRCRAFT BORNE AERIS SYSTEM (INDUCTION INVESTIGATIONS) WAS DEVELOPED AT THE SAME TIME. IN THE 1960'S, BITR DEVELOPED APPARATUS FOR THE ROTATING MAGNETIC FIELD SYSTEM, WHILE SVEGINGEO DEVELOPED APPARATUS FOR THE AERORADIOKIP METHOD OF SEARCHING OUT WATER IN DESERT AREAS. VIRG DEVELOPED A SIMILAR INSTRUMENT TO USE IN GEOLOGICAL MAPPING OPERATIONS VNIIGEOFIZIKA INTRODUCED THE SUCCESSFUL POISK RADIOGEODETIC SYSTEM. IN 1968-69 SEVERAL DIFFERENT INSTITUTES DEVELOPED THE AMPP AEROELECTROPROSPECTING SYSTEM FOR USE IN A METHOD INVOLVING TRANSITION PROCESSES OF THE ELECTROMAGNETIC FIELD.

UNCLASSIFIED

3/3 014 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136722

ABSTRACT/EXTRACT--RADAR, THERMAL, SPECTROMETRIC, AND RELATED AERIAL SURVEY METHODS ARE DEVELOPED IN LAEM. VARIOUS GEOLOGICAL SURVEY PROJECTS NOW UNDER WAY ARE GIVEN. FACILITY: VSESOYUZNYY AEROGEOLOGICHESKIY TREST. FACILITY: VSESOYUZNYY NAUCHNO-ISSLEDOVATEL'SKIY INSTITUT EKONOMIKI MINERAL'NOGO SYR'YA I GEOLOGORAZVEDOCHNYKH RABOT. FACILITY: MINISTERSTVO GEOLOGII SSSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--OIL EMULSION COOLANTS FOR ENGINES -U-

AUTHOR-(05)-BUTKOV, N.A., OSIPOVA, L.M., VOLKOV, A.S., DRESKOV, A.A., ROZHIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,585

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--03MAR70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PROPULSION AND FUELS

TOPIC TAGS--EMULSION, CHEMICAL PATENT, HEAT TRANSFER FLUID, THIOL, MERCAPTAN, BENZENE DERIVATIVE, ORGANIC AZOLE COMPOUND, PHOSPHATE ESTER, ANTICORROSION AGENT, MARINE ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0088 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127715

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AA0127715
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN OIL EMULSION FOR COOLING SHIP ENGINES, HAVING IMPROVED ANTICORROSION AND ANTICAVITATION PROPERTIES AND IMPROVED HEAT TRANSFER, CONTAINS H SUB2 O 98-9, ARUMATIZED OIL 0.712-1.424, NA SULFONATE 0.070-0.140, K NAPHTHENATE 0.180-0.360, 1,4 BUTYNEDIOL 0.010-0.020, MERCAPTOBENZOTHIAZOLE 0.003-0.006, CR STEARATE 0.005-0.0010, AND ALKYLZINC DITHIOPHOSPHATE 0.020-0.040PERCENT.

UNCLASSIFIED

USSR

UDC 669.71.053.24

OSTANIN, YU. D., KISELEV, V. P., DRESVIN, S. V., PARKHOMENKO, A. S.

"Study of the Power Characteristics of a Plasmatron and Determination of Certain Parameters of the Argon Plasma Arc"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, no. 71, pp 201-207. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G129 by the authors).

Translation: The energetic characteristics of a plasmatron suggested for the performance of technological processes involved in thermal methods of the production and refining of Al are studied. The basic parameters of the argon plasma arc are determined: arc temperature 11,000-14,000°K, heat flux $(1.29\text{-}3.62)\cdot10^4$ w/cm^2. 5 figs; 1 table.

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USSR

UDC:629.78.002.3

SHCHUKIN, V.K., DRESVYANNIKOV, F.N., BAYGALIYEV, B.E. and GOLIN, N.P.

"Experimental Investigation of Degradation Heat of Polymethylmethacrylate as Function of Temperature and Pressure"

Kazan', Tr. Kazan. Aviats. In-ta (Transactions of Kazan' Aviation Institute), 1972, vyp 151, pp 30-35 (from Referativnyy Zhurnal-Raketostroyeniye, 1973, Abstract No 4.41.210)

Translation: Degradation heat of N-polymethylmethacrylate in the temperature range of 777-1100°K and pressures 0.1-7 ton/m^2 was investigated experimentally. It was established that the degradation heat decreases with the increase of pressure. The experimental data were reduced by the least square method and approximated by the equation H=f(P, T). 3 illustrations. 3 references. Author's resume.

1/1

DREYER, N.N.
JPRS 58011
18 Jan 73

THE WORLD'S FRESH WATER RESOURCES

[Article by Professor M. I. L'vovich, Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 42, No 11, November 1972, pp 70-78]

The earth's water resources are composed of stationary water resources and resources renewed in the process of circulation. The total volume of stationary resources of its most 1.5 billion cubic kilometers, of which the fresh accessible for use, including ground, lake, and river water and also soil moisture and atmospheric vapor, amounts to 4-5 billion km³, according to our calculations. From these figures it follows that the earth apparently is not poor in fresh water resources. But the needs of mankind are assured only to a small degree through those reserves. The most reliable and constant source is water renewed in the process of such a colossal phenomenon as the water cycle. This is why in counting the fresh water resources the basic method is that of the water balance, which permits quantitatively considering the cycle and its separate elements and also estimating the continuous renewal of fresh water resources.

The concept of water exchange, proposed by us, which characterizes the time taken to replace all the water of a given part of the hydrosphere in the process of circulation, permits revealing important and interesting regularities in this phenomenon (Table 1). The activity of exchange of the saline waters of the hydrosphere-ocean and deep ground waters, the saline parts of which are brines, is numbered in thousands of years. On the other hand, comparison of the separate parts of the stationary reserves of the hydrosphere with the corresponding elements of the water balance shows that the fresh water reserves most valuable to people, in the presence of very low stationary reserves, are characterized by an exceptionally dynamic character. This very small in comparison with other parts of the hydrosphere is the simultaneous reserve of water in the beds of all rivers and does not exceed 1200 km³ (the volume of all lake waters is

calculated the river runoff by 5- and 10-degree belts of latitude, generalizing for each of them all the available data on river runoff, others (M. I. Budyko, 1956; L. I. Zubenok, 1970; F. Albrecht, 1961) took as a basis evaporation (it is deducted from precipitations it is possible to obtain an approximate water content of the river runoff), and a third group (M. I. L'vovich, 1945, 1956, 1964) started from the first compiled (later refined) world maps of river runoff.

All work on the water balance, including the world balance, was formerly constructed on the equation $P - h + E$ (precipitations = runoff + evaporation). That equation created a whole epoch in hydrology, since in the course of 7-8 decades it served as the basis of water-balance investigations of river basins and territories in general, but it reflects the interconnection of only three elements of the water balance and this does not satisfy contemporary science.

Last year in the Institute of Geography of the AS USSR, under the leadership of the author of this article and with the participation of [redacted] G. Yu. Karasik, G. M. Nikolayeva and G. M. Cherednichenko, work on the water balance of the continents of the world was completed. The basis of the investigations was the following system of differentiated equations, proposed by us (1959):

$$H = U + S;\ P = U + S + E;\ W = P - S = U + E;$$

$$K_U = \frac{U}{W};\ K_E = 1 - K_U = \frac{E}{W},$$

where H is the total river runoff; U is the underground and S is the surface (high-water) runoff into rivers, P is the atmospheric precipitations, E is the evaporation, W is the gross moisture of a territory, and K_U and K_E are the coefficients of feeding of rivers by underground waters and of evaporation.

This system of differentiated equations differs from those used earlier by increase in the number of elements of the water balance from 3 to 6, including genetically different parts of the river runoff which are of different practical value and are determinable by analysis of the course of runoff during the year, which permits distinguishing the runoff of underground origin. By means of calculations based on the new equations it is possible to arrive also at a general estimate of the reserves of soil moisture -- an important component of soil fertility.

The water balance of our country has been studied by that method in the Institute of Geography of the AS USSR, in the State Hydrological Institute, and in the Institutes of Geography of the AS Azerbaydzhan and Georgian SSR. That method has been used in investigations of Romanian, Bulgarian and Yugoslav specialists.

USSR

UDC 621.317.772.085.36.089.5

DREYFUS, B. M.

"Improving the Resolution of Digital Phase Inverters"

Voronezh, Izmeritel'naya Tekhnika, No 4, 1971, pp 63-65

Abstract: A study is made of a new method of improving the resolution of digital phase inverters. The method is based on the possibility of controlling the output variable of the device by means of partial variations of the shape of the pulse signals entering its output filters. The procedural errors of two versions of implementing this procedure are analyzed, the functional diagram is investigated, and results are presented from experimental studies of a device in which the principle is implemented.

Both of the investigated methods of regulating the phase shift make it possible to decrease the discreteness by an order without changing the capacity of the calculating unit of the inverter and, consequently, without further restrictions of the output signal frequency. However, the new procedure is preferable from the point of view of convenience of implementation since it is simpler (it does not require additional introduction of a precision switchable divider), it is more convenient to adjust and makes greater use of the initial

USSR

DREYFUS, B. M., Izmeritel'naya Tekhnika, No 4, 1971, pp 63-65

phase converter apparatus (the regulatable parameter ψ is varied by the same procedures that the phase shift ϕ between the output signals is varied). The error of the device implementing the new procedure in the sound frequency range does not exceed 0.02% with a phase shift variation discreteness of 0.1°.

2/2

1/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PREPARATION OF PURE TRIMETAPHOSPHIMIC ACID -U-

AUTHOR-(03)-NIKOLAYEV, A.F., DREYMAN, N.A., ZYRYANOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHC. KHIM. 1970, 40(4); 937-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHONITRILE, CHLORIDE, PHOSPHORUS ACID, AMINE DERIVATIVE, CHEMICAL SYNTHESIS, ION EXCHANGE RESIN/(U)KU2 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0825 STEP NO--UR/0079/70/040/004/0937/0938

CIRC ACCESSION NO--AP0134558

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134558

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CYCLIC NA SUB3(PO SUB2 NH)SUB3 TIMES 4H SUB2 O FROM HYDROLYSIS OF (PNCL SUB2)SUB3 WITH COLD NAOAC WAS REPPTD. FROM AQ. SOLNWITH ETOH AND PURIFIED ON KU2 SULFONIC ACID ION EXCHANGE RESIN IN H PRIME POSITIVE FORM, TO YIEDL THE PURE SOLN. OF THE FREE ACID THAT IS STABLE IN STORAGE EVEN IN LIGHT; EVAPN. IN VACUO GAVE H SUB3 (PO SUB2 NH)SUB3 TIMES H SUB2 O, NEEDLES, M. 196DEGREES, PPTD. BY MEOH. THE ACID CONVERTED TO THE TRI NA SALT AND THIS PASSED IN AQ. SOLN. OVER KU2 RESIN IN H PRIME POSITIVE FORM GAVE THE PURE ACID MONOHYDRATE IN 86PERCENT YIELD. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 546.185

NIKOLAYEV, A.F., DREYMAN, N.A., and ZYRYANOVA, T.A., Leningrad Technological Institute imeni Lensovet, Leningrad, Ministry of Higher and Secondary Specialized Education RSFSR

"Synthesis of Pure Trimetaphosphimic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 4, Apr 70, pp 937-938

Abstract: Continuing their work on the synthesis of stable trimetaphosphimic acid (TMPA), the authors developed a method for its synthesis in an aqueous solution free of admixtures of foreign ions which affect the stability of the acid, with subsequent isolation in the crystalline state. The initial product is the Na salt of TMPA, $Na_3(PO_2NH)_3 \cdot 4H_2O$, obtained by hydrolysis of triphosphonitrile chloride with sodium acetate.

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USSR UDC: 534.2

DREYMAN, N. I., DASHEVSKIY, R. A.

"Investigation of the Nature of Acoustic Vibrations of Binary Alloys Under the Influence of a Mechanical Pulse"

Nauch. tr. vyssh. ucheb. zavedeniy LitSSR. Vibrotekhnika (Scientific Works of Institutions of Higher Education in the Lithuanian SSR. Vibration Engineering), 1971(1972), No 2(15), pp 187-194 (from RZh-Fizika, No 5, May 73, abstract No 5Zh569 by the authors)

Translation: The paper gives the results of theoretical and experimental studies of the rate of damping of acoustic vibrations and the levels of acoustic pressure in plates made from binary alloys of iron with chromium, nickel, and manganese. Acoustic vibrations were excited by a mechanical pulse. A direct proportionality is observed between the rate of damping of acoustic vibrations and internal friction in the binary alloys investigated. The effect of chemical and phase composition on levels of acoustic pressure is determined in frequency bands. A formula is derived for the rate of damping of acoustic vibrations. The limits of applicability of this formula are determined by comparing theoretical and experimental data. Bibliography of eight titles.

1/1

USSR

UDC 669.245'.1.018.64

DREYMAN, N. I.

"Investigation of the Acoustic Radiation of Iron-Nickel Alloys"

V sb. Probl. inzh. okhrany truda (Mosk. in-t stali i splavov, 63), (Problems in Engineering Labor Protection -- Collection of Works) (Moscow Institute of Steel and Alloys, 63), Moscow, 1970, pp 63-74 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 I858 by the author)

Translation: An investigation was made of the acoustic radiation of binary Fe-Ni alloys using an original experimental device created for this purpose. It was established that the variation in sound pressure levels depends on the phase composition of the alloys. A dependence was found between variation of internal friction and rate of sound damping. Four illustrations. One table. Bibliography of eight titles.

1/1

USSR

UDC 678.84'747.5:678.85:541.27

DREYMAN, Ya. A., and RUMBA, G. Ya., Institute of Inorganic Chemistry, Academy of Sciences Latvian SSR

"Mechanism of the Reaction Between Octamethylcyclotetrasilazane and the Dichloride of Methylphosphonic Acid"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No 4, 1971, pp 435–438

Abstract: The reaction of octamethylcyclotetrasilazane (I) with the dichloride of methylphosphonic acid (II) was carried out at various ratios of I to II in melts at 150–60° and 300° and also (cf. Rumba and Dreyman, Izv. AN Latv. SSR, Ser. Khim., 736, 1969) in boiling toluene. The reaction proceeded according to the following general scheme:

$$/Me_2SiNH/_4 + MeP(O)Cl_2 \rightarrow Me_2SiCl\text{–}NSiMe_2\text{–}N\text{–}Me_2SiNSiMe_2\text{–}OPMe + NH_4Cl$$

(sic.)

USSR

BLIZNYUK, N. K., et al., USSR Author's Certificate No 337384, filed 31 Oct 69, published 2 Jun 72

C_5H_{11}, Cl, 80-5/3, 1.5246, 1.2049, 48; C_6H_{13}, Cl, 87-90/3, 1.5160, 1.1730, 44.1; C_7H_{15}, Cl, 108-13/3, 1.5220, 1.1243, 34.3; C_8H_{17}, Cl, 130-2/3, 1.5140, 1.1290, 56.9; $C_{10}H_{21}$, Cl, 137-40/2, 1.5060, 1.0705, 31.1; C_6H_{11}, Cl, 103-7/2. 1.5580, 1.2867, 24.5; Ph, Cl, 100-3/2, 1.6258, 1.4261, 915.; $4\text{-}ClC_6H_4$, Cl, 133-5/2, 1.6298, 1.5085, 78.5; $2,5\text{-}Cl_2C_6H_3$, Cl, 146-52/31, 1.6382, 1.6272, 47; $4\text{-tert-}BuC_6H_4$, Cl, 146-9/2, --, --, 91.2; Ph, Br, 136-8/1, 1.6998, 1.9168, 70.7; Br, Cl, 120-2/2, 1.6158, 1.3702, 80. Compounds I are used as intermediates in synthesizing various organophosphorus compounds used as pesticides, fuel additives and lubricant additives.

2/2

USSR

DREYMAN, Ya. A., and RUMBA, G. Ya., Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No 4, 1971, pp 435-438

At a molar ratio I/II > 1, NH_3 evolved in the reaction, while at I/II < 1 Me_2SiCl_2 evolved. At the close contact of the reacting substances in melts, the evolution of NH_3 and Me_2SiCl_2 was impeded. It was possible only at the temperature of 300°, at which cross-linked products formed that were insoluble in benzene, toluene, and xylene. On melting of I + II at 150-60°, compounds with a low degree of condensation and dimethylcyclosilazanes formed. In the presence of an organic solvent such as toluene, there was no close contact between the reacting substances, so that a part of the NH_3 that was frees escaped from the reaction mixture without participating in the polycondensation and without forming NH_4Cl. The organic solvent contributed to the separation of NH_4Cl from the reaction products. The amount of NH_3 that evolved and the reaction rate depended on the amount of the solvent. When the amount of solvent was cut in half, the evolution of NH_3 increased by 35-40% in the reaction carried out with unchanged quantities of I and II.

2/2

USSR UDC 678.84/85.057:543.422.4:541.67

DREYMAN, YA. A., and RUMBA, G. YA.

"Reaction of Methylphosphonic Acid Dichloride With Metal Substituted Octamethylcyclotetrasilazane"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No 2, 1973, pp 197-203

Abstract: It has been established that butyl lithium and butyl sodium react with octamethylcyclotetrasilazane in boiling toluene and in the presence of styrene, leading to the substitution of the hydrogen in the Si-NH group and to the opening of the Si-N bond as well. The reaction of this metal substituted cyclotetrasilazane with $CH_3P(O)Cl_2$ proceeds with contraction of the cycle. In this way cyclic oligomers containing tertiary nitrogen atom have been obtained. The individual compounds have been isolated by vacuum distillation, their structures were confirmed by IR- and PMR-spectra.

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USSR UDC 541.614:546.18'171'13 [illegible]

[illegible] YA. A., and [illegible], G. YA., Institute of Inorganic Chemistry, Acad. Sc., LatvSSR, Order of Labor Red Banner Riga Polytechnical Institute

"Reaction of Octamethylcyclotetrasilazane With Phosphorus Trichloride and Oxychloride"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No [illegible], [illegible], pp 89-93

Abstract: The reaction of octamethylcyclotetrasilazane (I) with phosphorus trichloride (II) and oxychloride (III) was studied with, and without saturation of the reaction mixture with NH_3. The reaction was carried out in boiling toluene. Under the action of (II) and (III), (I) breaks at the silicon-nitrogen bond forming silicon-chlorine and phosphorus-nitrogen bonds. The products obtained are viscous materials, easily hydrolyzed in air; they show IR bands at 429-503, 653, and 3308 cm^{-1}, characteristic of P-Cl, Si-Cl and N-H bonds. Depending on the ratio of the reagents, ammonia or dimethyldichlorosilane are liberated in the reaction. Six membered rings are postulated for the resulting products, on the basis of IR spectral data. When the reaction was carried out in presence of trimethylchlorosilane -- a chain terminating agent -- the products formed had molecular weights of 1100-1[illegible]. Hydrolytic stability of

1/2

USSR

DREYMAN, YA. A. and [illegible], G. YA., Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Khimicheskaya, No 1, 1972, pp 89-93

the products was studied, showing that the compounds containing phosphonyl groups are somewhat more stable than those obtained from (I) and (II).

2/2

Stress Analysis and Stability Studies

USSR

UDC 539.621

VLASOV, V. I. and DREYMANIS, D. A. (Moscow-Riga)

"Determination of the Service Life of Friction Materials Under Conditions of Unsteady Dry Friction"

Moscow, Mashinovedeniye, No 3, May 1973, pp 102-108

Abstract: General principles are worked out for evaluating the wear of a friction material under conditions of work with variable pressures, temperatures, and rates of slipping at the frictional contact. For each friction material the linear intensity of wear depends upon the pressure at the frictional contact, which in its turn changes in the process of engagement of the frictional assembly. To account for the change of these parameters, a series of experiments was conducted to determine the coefficient of friction and the linear intensity of wear in relation to the pressure developed at the frictional contact. Four typical cases of the loading of quick-response frictional assemblies with a different time ratio of relative slippage and engagement, i.e., the time of pressure increase, are considered as an example.

The proposed calculation relationships are convenient for calculations on electronic digital computers, with the aim of working out nomograms for practical use in specific conditions. The practical value of the proposed method consists in the fact that on the basis of bench-test data, the wear resistance

USSR

VLASOV, V. I. and DREYMANIS, D. A., Mashinovedeniye, No 3, May 1973, pp 102-103

of friction materials can be quantitatively evaluated under actual load conditions, and the optimal regimes of work can be determined in relation to the properties of the friction material. 5 figures, 7 references.

2/2

USSR

UDC: 537.311.33

DREYMANIS, E. A., KLOTYN'SH, E. E., PETROV, V. K., Power Engineering Physics Institute, Academy of Sciences of the Latvian SSR

"The Faraday Effect in N-Type Gallium Arsenide in the Region of Intermediate Doping"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR, Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 5, 1972, pp 25-31

Abstract: An investigation was made of moderately heavily doped N-type gallium arsenide with a gradual reduction in the Fermi level by introducing copper as an impurity to act as an accpetor in compensating the initial donors. Measurements were made of the Hall effect, the transverse Nernst-Ettingshausen effect, the differential thermoelectromotive force and the Faraday effect on free carriers at 90-480 kelvins. It is shown that the measure of distortions of the conduction band must be considerable in gallium arsenide over a broad range of charge carrier concentrations. It is shown that when the Fermi level is lowered sufficiently by compensation, the effective mass of electrons depends on the degree of doping, i. e. on the overall concentration of impurity ions.

1/1

USSR

UDC 624.072.04

DRIVING, A. Ya., Moscow

"On the Nonlinear Theory of Elastic Bars"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 1, 1973, pp 11-14

Abstract: Apparently new differential correlations of the problem of thin elastic bars are presented which make it possible to determine the integral of the initial differential equation in the scope of the theory of thin bars as well in the statement not excluding the squeezing of the bar axis and shearing strain. Assuming a plane bending form of the bar axis and a state of plane stress, solving equations of the problem are differentiated relating the coordinates of points of the bar axis to external forces. The solutions for the case of deformable axis and for the case of intersecting forces affecting the deformation of the bar axis are discussed. As an example is presented the calculation of a slanting triple-hinged arc loaded by a point force. Numerical calculation results are discussed by reference to diagrams. Three figures, two tables, nineteen formulas, three bibliographic references.

1/1

USSR

UDC 621.314.58

KROGERIS, A.F., RUTMANIS, L.A., DREYMANIS, YA. P.

"Determination Of The Number Of Switchings Of Power Elements Of A Converter With Various Methods Of Frequency Conversion"

V sb. Poluprovodniki i ikh primeneniye v elektrotekhn. (Semiconductors And Their Application In Electrical Engineering--Collection Of Works), No 4, Riga, "Zinatne," 1970, pp 187-202 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B454)

Translation: A method is given for determining by analytical and graphic means the number of switchings of power elements with various methods of frequency conversion; the method is characterized by a composite function for determination of the moments of commutation. The possibility is shown of decreasing the number of switchings in the event of the use of any existing instantaneous values of the input voltages for formation of the output voltage of the converter. 5 ill. 1 tab. 5 ref. I.R.

1/1

USSR

UDC 538.25

BAYBIKOV, B. S., DREYTSER, G. A., KALININ, E. K., and NEVEROV, A. A., Moscow Aviation Institute

"The Effect of Reinolds Number on the Nonstationary Convection Heat Exchange in a Tube During a Change in Heat Load"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 6, Nov-Dec 72, pp 1248-1255

Abstract: Experimental study was carried out of the nonstationary local heat output with a constant air consumption in an electrically heated tube and intermittent change in heat liberation in a thin wall tube. It has been established that the nonstationary heat output differs substantially from the calculated value obtained with an assumption of a quasistationary state. Increase in Re leads to a diminished effect of the nonstationary state of Nu. It has been shown that a change in air pressure has no effect on the heat output both during the stationary and nonstationary heat load. Experimental results have been generalized in form of the function $K = f(K_{T_g}, Re, T_w/T_b)$. The calculations carried out show that with a nonstationary heat load on the tube wall, the turbulent characteristic of air stream should be substantially different from the quasistationary ones.

1/1

USSR

UDC 536.244:532.517.4.001.5

KALININ, E. K., DREYTSER, G. A., BAYBIKOV, B. S., NEVEROV, A. S.

"Effect of a Nonstationary Heat Flow on Heat Emission in a Pipe Under Gas Heating"

V sb. Teplo- i massoperenos (Heat and Mass Transfer -- Collection of Works), Vol. 1, Minsk, 1972, pp 363-367 (from RZh-Teploenergetika, No 7, Jul 72, Abstract No 7G83)

Translation: An experimental study of the local nonstationary coefficient of heat emission is described. The study was made for different laws of the change in heat emission in two thin-walled tubes of thickness 0.3 and 0.22 mm and internal diameters of 5.93 and 5.56 mm, respectively, and length 1200 mm and for a turbulent gas flow with constant discharge G. The experiments were in the following ranges: $Re_b = 10^4 - 6.4 \cdot 10^5$, temperature factor $(T_w/T_b) = 1.12-1.16$ and gas pressure 2-2.6 kgauss/cm^2. The change in $K = Nu/Nu_0$, (Nu and Nu_0 are the nonstationary and quasistationary Nusselt numbers) and in the wall temperature T_w with time was independent of pressure and is determined

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USSR

KALININ, E. K., et al, Teplo- i massoperenos, Vol. 1, Minsk, 1972, pp 363-367

by G and the heat release in the walls of the tube. In nonstationary conditions the coefficient of heat release is considerably different from the quasistationary value and depends on the quantity $K_{Tg} = \partial T_w/\partial T \cdot d/(T_w - T_b)_0 \times \sqrt{\lambda/\psi_p Gg}$, where τ is time, $(T_w - T_{b0})$ is the temperature head in a given section of the tube, the form of the final temperature head for the input and the latter the initial temperature head for the output of the thermal load; λ and ψ_p are the coefficient of thermal conductivity and the thermal capacity of the gas, $g = 9.8\ m/c^2$. This criterion characterizes the ratio of the nonstationary transfer of thermal flow from the wall to the convective axial thermal flow. The effect of K_{Tg} on nonstationary heat transfer is reduced with the growth in Re, the growth of T_w/T_b for $T_{Tg} > 0$ and with the decrease of T_w/T_b for $K_{Tg} < 0$ and is independent of gas pressure. The experimental results are generalized in the form of relationships between K and K_{Tg}, Re, T_w/T_b. 3 ill., 2 ref. Authors abstract.

2/2

USSR

VITKINA, B. S., RUSSINA, A. Ye., BOBYLEVA, T. K., GRINBERG, I. R., SOKOLOVA, N. N., DREYZIN, R. S., and SLEPUSHKIN, A. N., Smolenskaya Oblast Sanitary Epidemiological Station, and Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences

"Etiology and Epidemiology of the 1969 Influenza Outbreak in Smolensk"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 71, p 494

Translation: The paper presents results of a study of the 1969 influenza outbreak in Smolensk, where almost one-half of the inhabitants had received live influenza vaccines during the preceding five autumn and winter seasons. The disease developed more gradually than during the two previous epidemics (1965 and 1967). Influenza virus was isolated from 127 out of 355 patients. A study of the antigenic structure of 20 strains revealed that all strains were neutralized by 1/60 Hong Kong serum either completely or to one-half of the homologous titer. No essential differences were found between strains obtained from vaccinated and nonvaccinated individuals. All strains were highly sensitive to the inhibitors present in normal guinea pig or horse serum. Serological shifts in the patients coincided with the epidemic influenza curve. The frequency of influenza diagnosed among 235 clinic patients was compared with that of 304

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USSR

VITKINA, B. S., et al, Voprosy Virusologii, No 4, Jul/Aug 71, p. 494

hospitalized patients. Serological confirmation of the diagnosis was 8% greater among the hospitalized group. However, at the end of the epidemic, when morbidity returned to almost normal level, influenza was twice as frequent in clinic than in hospitalized patients. Comparison of the frequency of influenza and of other acute respiratory diseases recorded during the interepidemic year of 1968 and during the epidemic in 1969 revealed that the frequency of parainfluenza and of adenoviral infections was approximately the same during both periods.

2/2

USSR

UDC 616.985.5-053.3-097.5

DREYZIN, R. S., VOD'YA, R. A., and ZOLOTARSKAYA, E. Ye., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and Tallin Scientific Research Institute of Epidemiology, Microbiology, and Hygiene

"Long-Term Follow-Up of the Level of Antibodies to Adenoviruses in Institutionalized Children"

Moscow, Voprosy Virusologii, No 5, 1971, pp 590-596

Abstract: The formation of humoral immunity to six serotypes of adenoviruses (types 3 and 7 and latent types 1, 2, 5, and 6) was studied in 90 institutionalized Estonian children ranging in age from 2 months to 3 years. By age 3 the sera of all the children contained antihemagglutinins to types 3 and 7, and only 38 to 63% contained neutralizing antibodies to each of the latent types, despite the fact that the latter circulated in the group. There were numerous cases of natural reinfection with the same type of virus. The level of immunity markedly increased after reinfection as manifested by a sharp rise in antibody levels, persistence of high titers, and slow lowering of the levels. The results of the study suggest that immunity to adenovirus infection is maintained by infection with the commonest serotypes. Primary infections

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710013-5"

USSR

DREYZIN, R. S., et al., Voprosy Virusologii, No 5, 1971, pp 590-596

arose in the absence of antibodies in the serum, while reinfection occurred both in the absence of antibodies and in the presence of neutralizing antibodies to the latent types in titers of 1:10 and of antihemagllutinins to types 3 and 7 in titers ranging from 1:10 to 1:80. The complement-fixing antibodies were the first to disappear, then the antihemagglutinins, and last of all the neutralizing antibodies.

2/2

USSR

UDC 576.858.095.5

DREYZIN, R. S., BIKHNOVICH, E. M., BOROVKOVA, N. M., and PONOMAREVA, T. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Characteristics of Replication of Five Serotypes of Rhinoviruses and Their Antigenic Relationships"

Moscow, Voprosy Virusologii, No 5, 1971, pp 565-569

Abstract: The cycles of replication of rhinovirus strains B632, 1059, 33342, 56822, and Feb in a culture of HeLa cells last about 6 to 7 hours. The maximum titers of infectious virus are found after 9 to 12 hours. Infectious virus appears in the culture fluid of all strains 2 to 3 hours later than in the cells. The cytopathic effect is not manifested in the infected cells until 1 or 2 hours after the appearance of the virus in the cell phase, i.e., after 8 hours of cultivation. Antigens of strains 1059, 56822, and B632 can be found in a subculture of human embryo fibroblasts after 4 to 6 hours of cultivation and those of the Feb strain after 10 to 12 hours by using the indirect immunofluorescence method. In all stages of infection the antigens are concentrated in the cytoplasm. Analysis of antigenic relationships using the indirect immunofluorescence method shows a lack of common antigens in

USSR

DREYZIN, R. S., et al., Voprosy Virusologii, No 5, 1971, pp 565-569

strains 1059, 56822, B632, and Feb as well as strict type-specificity of immune sera.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--FOCAL INJURIES OF THE MYOCARDIUM IN OPERATED PATIENTS -U-

AUTHOR-(02)-SHKROB, O.S., DREYZINA, A.M.

D

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 3, PP 41-48

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYOCARDIUM, NECROSIS, SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1175 STEP NO--UR/0531/70/000/003/0041/0048

CIRC ACCESSION NO--AP0054074

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054074

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS REPORT ON THE DEVELOPMENT OF FOCAL INJURIES OF THE MYOCARDIUM (MYOCARDIAL INFARCTION, FOCAL NECROSIS, FOCAL DYSTROPHY) IN PATIENTS OPERATED UNDER ANESTHESIA. SUCH COMPLICATIONS WERE OBSERVED IN 29 OUT OF 1400 OPERATED PATIENTS, AGED 21 TO 80 YEARS. THE PAPER ANALYZES THE FACTORS CONDUCIVE TO THE DEVELOPMENT OF THE REFERRED TO COMPLICATIONS, AS WELL AS TO THE FEATURES SPECIFIC TO THE DIAGNOSIS, CLINICAL COURSE AND TREATMENT OF POSTOPERATIVE MYOCARDIAL INFARCTION.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CORRECTION OF THE WATER AND SALT METABOLISM IN PATIENTS AFTER OPERATIONS ON THE STOMACH -U-

AUTHOR-(05)-SHKROB, O.S., DREYZINA, A.M., SOLOMATINA, N.F., KUZMINA, L.N., PARSHENKOVA, O.I.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 4, PP 60-65

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--METABOLISM, SURGERY, STOMACH, DIGESTIVE SYSTEM, ELECTROLYTE, BLOOD CIRCULATION, BLOOD PLASMA, PROTEIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1236 STEP NO--UR/0531/70/000/004/0060/0065

CIRC ACCESSION NO--AP0054131

UNCLASSIFIED

2/2 030 UNCLASSIFIED

CIRC ACCESSION NO--AP0054131 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS REPORT THE RESULTS OF CORRECTION OF WATER IONIC DISTURBANCES IN PATIENTS OPERATED ON THE STOMACH. A TOTAL OF 120 PATIENTS SUBJECTED TO GASTRECTOMY, RESECTION OF THE STOMACH AND PALLIATIVE OPERATIONS WERE EXAMINED. CORRECTION OF HYDROIONIC DISTURBANCES WAS CARRIED OUT FROM THE FIRST DAY AFTER THE OPERATION AND CONSISTED IN OBLIGATORY USE OF POLYIONIC SOLUTIONS WITH DUE CONSIDERATION OF THE LOOS OF ELECTROLYTES. DYNAMIC INVESTIGATIONS OF PLASMA AND URINARY ELECTROLYTES, VOLUME OF CIRCULATING BLOOD, PLASMA, CIRCULATING PROTEIN, HEMOGLOBIN, HEMATOCRIT, VOLUME OF INTRACELLULAR AND TOTAL WATER AGAINST THE BACKGROUND OF THE SOLUTIONS ADMINISTERED DURING PARENTERAL NUTRITION REVEALED NO ESSENTIAL FLUCTUATIONS. THIS TESTIFIED TO THE FACT THAT THE EMPLOYED METHOD OF PARENTERAL NUTRITION IN PATIENTS AFTER OPERATIONS ON THE GASTROINTESTINAL TRACT COMPENSATES THE WATER AND SALT DEFICIENCY. AS THE RESULT OF THE ABOVE MENTIONED TREATMENT DURING THE LAST TWO YEARS NO SYMPTOMS OF DEHYDRATION AND DYSELECTROLYTEMIA WERE OBSERVED.

UNCLASSIFIED

USSR

UDC 616.988(RS)-092.9-097

DREZYIN, R. S., VYSHNEVETSKAYA, L. O., BAGDAMYAN, YE. YE., YANKEVICH, O. D., TARASOVA, L. B., and KLENOVA, A. V., Institute of Virology Virusologii, No 6, Nov/Dec 71, pp 670-676

Abstract: Cotton rats aged 1½-2 weeks were experimentally infected with the Long strain of RS virus through intranasal inoculation, and the progress of the disease was investigated with three methods, yielding corresponding results. The virus and the specific antigen (anti-RS FITC-globulin of rabbits) were detected 24 hours after inoculation. The intensity of fluorescence, the precentage of cells containing the antigen, and the virus titer in the epithelium of the nose, trachea, bronchi, and alveoli reached a maximum in 3 to 5 days, at which time maximum pathomorphological changes were also observed in the epithelium of the trachea, bronchi, and bronchioles. The intensity of the infectious process declined on the 7th day, and neither the specific antigen, nor the virus, nor the pathomorphological changes in the epithelium of the respiratory pathways were found on the 14th day.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--PETROLEUMS FROM THE NIZHNE VARTOVSKOE ARCH IN WESTERN SIBERIA -U-

AUTHOR-(02)-AKHCHIYAN, M.A., ORIATSKAYA, Z.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 11-13

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, PROPULSION AND FUELS
TOPIC TAGS--PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION, LUBRICATING OIL, TECHNICAL STANDARD, DIESEL FUEL, GASOLINE, SULFUR, WAX/(U)GOST 9128o PETROLEUM STANDARD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/2084 STEP NO--UR/0065/70/015/004/0011/0013

CIRC ACCESSION NO--AP0127457
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127457

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE PETROLEUM IS RELATED TO THE 2ND CLASS (CF. GOST 912-66), CONTAINS 0.51-2.00PERCENT S AND YIELDS GASOLINE, JET AND DIESEL FUELS WITH SMALLER THAN OR EQUAL TO 0.15, 0.25, AND 1.0PERCENT S, RESP., 45PERCENT FRACTIONS B. SMALLER THAN OR EQUAL TO 350DEGREES, AND 18-21PERCENT BASE STOCK FOR LUBRICATING OILS WITH VISCOSITY INDEX LARGER THAN 85 AND 1.5-3.5PERCENT PARAFFIN WAX. THE PETROLEUMS OF THE IDFFERENT DEPOSITS WERE SIMILAR.

UNCLASSIFIED

USSR

UDC 541.132

BURSHTEYN, R. KH., DRIBINSKIY, A. V., TARASEVICH, M. R., CHIZMADZHEV, YU. A., CHIRKOV, YU. G., Institute of Electrochemistry, Academy of Sciences USSR, Moscow

"Mechanism of Current Generation in Hydrophobic Gas-diffusion Electrodes. I"

Moscow, Elektrokhimiya, Vol 7, No 12, Dec 71, pp 1826-1830

Abstract: In spite of the wide utilization of hydrophobic gas-diffusion electrodes, the mechanism of their action has been poorly studied. This study was aimed at theoretical analysis of the mechanism of current generation in such electrodes and comparison with experimental results. The active layer of a hydrophobic electrode may be approximated by a model consisting of a gas filled cylinder, its walls a mixture of fluoroplast and a catalyst wetted with the electrolyte. With $\varphi > 0.97$ the entire surface of porous electrode generates current by an intrakinetic regimen. The electrochemical activity of hydrophobic electrodes calculated from derived equation and the one obtained experimentally for the range $\varphi = 1.07 \rightarrow 0.9$v were very close. The

USSR

BURSHTEYN, R. KH., et al, Elektrokhimiya, Vol 7, No 12, Dec 71, pp 1826-1830

electrochemical activity of these electrodes is in direct linear relationship to the layer thickness at low polarizations. It has been determined that when $\bar{\eta}$ <1-1.5, the current generation is controlled by the kinetic regimen and when $\bar{\eta}$ >8--by the intra-diffusional regimen.

2/2

DRIATSKIY V. M.

JPRS [illegible]

12 [illegible]

MONITORING NORTHERN HEMISPHERE TRANSMISSIONS IN ANTARCTICA AND SOME OBLIQUE SOUNDING SYSTEMS

Selected articles from the Russian-language journal Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta, Vol 280, 1966, Leningrad.

CONTENTS

- a -

[I - USSR - F]

1/2 015 UNCLASSIFIED

TITLE--THE GINZBURG LANDAU EQUATION FOR NONZERO ANGULAR MOMENTUM PAIRING -U-

PROCESSING DATE--18SEP70

AUTHOR-(02)-DRIBINSKIY, B.L., ZELEVINSKIY, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEROETICHESKOY FIZIKI, 1970, VOL 58, NR 3, PP 1057-10 1

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SUPERCONDUCTOR, MATHEMATIC PHYSICS, ANGULAR DISTRIBUTION, ALGEBRAIC EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1977/0181

STEP NO--UR/0056/70/058/003/1057/1061

CIRC ACCESSION NO--AP0043773

UNCLASSIFIED

2/2 015 UNCLASSIFIED

CIRC ACCESSION NO--AP0043773 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ANALOG OF THE GINZBURG LANDAU EQUATION IS DERIVED FOR A SUPERCONDUCTOR IN WHICH COOPER PAIRING TAKES PLACE IN STATES WITH NONZERO PAIR ANGULAR MOMENTUM L. THE EQUATION IS SIMILAR TO THE RADIAL SHROEDINGER EQUATION FOR AN L-TH PARTIAL WAVE WITH CUBIC NONLINEARITY. ITS SOLUTION IS A SPHERICAL VORTEX WHICH IS A COMPLETELY ISOTROPIC BUT SPATIALLY NONUNIFORM STATE IN WHICH COPPER PAIRS AS A WHOLE REVOLVE ABOUT THE VORTEX CENTER IN WHICH THE ORDER PARAMETER VANISHES. IT IS SHOWN THAT THE VORTEX STATE HAS A FREE ENERGY MINIMUM AS COMPARED WITH PREVIOUSLY PROPOSED SOLUTIONS.

1/2 032 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--NONLINEAR EFFECTS DURING THE AMPLIFICATION OF SOUND IN N INDIUM ANTIMONIDE IN A STRONG MAGNETIC FIELD -U-

AUTHOR-(03)-GALPERIN, YU.M., DRICHKO, I.L., LAYKHTMAN, B.D.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970 12(5), 1437-42

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INDIUM ANTIMONIDE SEMICONDUCTOR, AUDIO FREQUENCY AMPLIFIER, NONLINEAR EFFECT, TRANSVERSE MAGNETIC FIELD, CONDUCTION ELECTRON, ACOUSTIC WAVE, VIBRATION RELAXATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0876 STEP NO--UR/0181/70/012/005/1437/1442

CIRC ACCESSION NO--AP0131463

UNCLASSIFIED

2/2 032 UNCLASSIFIED

CIRC ACCESSION NO--AP0131463 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NONLINEAR DEPENDENCE WAS OBSD. OF THE COEFF. OF AMPLIFICATION OF SOUND AND ITS INTENSITY IN N INSB AT 77DEGREESK IN A STRONG, NONQUANTIZED, TRANSVERSE MAGNETIC FIELD. THIS EFFECT IS EXPLAINED BY HEATING OF CONDUCTION ELECTRONS BY THE ELEC. FIELD OF THE SOUND WAVE. THE RELAXATION TIME OF THE IMPULSE OF ELECTRONS IS INDEPENDENT OF ENERGY AS WELL AS OF THE MECHANISM OF RELAXATION OF THE ENERGY ELECTRONS. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE EFFECT OF ERRORS OF THE PHASE ALTERING DEVICE ON THE TRANSMISSION OF THE INTERFERENCE POLARIZING FILTER STAGE -U-

AUTHOR--ORICHKO, N.M.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, OPTIKO MEKHANICHESKAYA PROMYSHLENNOST;, NO 2, FEB 70, PP 13-18

DATE PUBLISHED----FEB70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--PHASE SHIFT, ELECTRON POLARIZATION, BAND SPECTRUM, SIGNAL TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1589 STEP NO--UR/0237/70/000/002/0013/0018

CIRC ACCESSION NO--AP0118572

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING THE POINCARE'S SPHERE METHOD A STUDY WAS MADE OF THE EFFECT OF ERRORS IN THE ORIENTATION AND DIFFERENCE IN PHASES OF COMPONENTS OF THE PHASE ALTERING DEVICE ON THE TRANSMISSION OF THE WIDE ANGLE INTERFERENCE POLARIZING STAGE WITH A MOVABLE TRANSMISSION BAND. RELATIONS WERE OBTAINED PERMITTING EVALUATION OF THE MAGNITUDE OF PERMISSIBLE ERRORS.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--THE INFLUENCE OF HYPERCOAGULATION ON THE DURATION OF LIFE OF CR PRIMES1 LABELLED ERYTHROCYTES -U-

AUTHOR-(02)-ASHKINAZI, I.YA., DRICHKO, V.F.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 3, PP 46-49

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD COAGULATION, CHROMIUM ISOTOPE, TAGGED ATOM, ERYTHROCYTE, RABBIT, HEMOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0850 STEP NO--UR/0219/70/069/003/0046/0049

CIRC ACCESSION NO--AP0052284

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--13SEP70

CIRC ACCESSION NO--AP0052284

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPEATED ACTIVATION OF THE INTRINSIC COAGULATION IN RABBITS BY INTRAVENOUS INJECTION OF A SUSPENSION OF DIATOMITE AND ACTIVATED PLASMA IN A NUMBER OF EXPERIMENTS RESULTED IN A DISTINCT SHORTENING OF THE DURATION OF LIFE OF CR PRIMBSI LABELLED ERYTHROCYTES. IN THE PATHOGENESIS OF HEMOLYSIS, ALONG WITH THE EFFECT OF THE MECHANICAL FACTOR, A PROMINENT ROLE IS, APPARENTLY, PLAYED BY SECONDARY ALTERATION OF THE MEMBRANE OF CIRCULATING ERYTHROCYTES AS THE RESULT OF MOBILIZATION OF THE THROMBOPLASTIN FACTOR.

UNCLASSIFIED

Acc. Nr.: AM0103684 Ref. Code: UR0000

Drigval', G. P.

Digital Differential Analyzers (Tsifrovyye differential'nyye analizatory)
Moscow, Sovetskoye Radio, 1970, 455 pp (SL:2081)

TABLE OF CONTENTS:

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REEL/FRAME
19861971

4

Acc. Nr.: AM 0103684

The book deals with the theory of digital differential analyzers, their system of characteristics and classification...

It was written for scientists, engineers, technicians, college and post-graduate students specializing in the field of design and use of computers.

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EB

REEL/FRAME

19861972

DRIKKER A S

41

TECHNICAL TRANSLATION

FSTC-HT-23-[illegible]-72

[illegible]

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIYEM

AUTHORS: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SHEVCHENKO

Translated for FSTC by ACSI

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USSR

UDC 621.382.2.029.64

DRITOV, L.A., ABRAMOV, A.N., GAGUL'KIN, A.I.

"Methods Of Control Of Frequency Converter Based On Transit Effect"

Tr. Ul'yanovsk. politekhn. in-ta (Works Of Ul'yanov Polytechnical Institute), 1971, 6, No 3, pp 129-134 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B209)

Translation: Some methods are considered for control of the frequency of microwave oscillators in a regime of limited buildup of the space charge. 1. Frequency tuning by a change of the voltage applied to a crystal in which a p-n junction is formed parallel to the surface of the base plate with planar contacts. Change of the thickness of the barrier layer under the action of exterior voltage changes the generating volume and consequently also the generation frequency. The range of frequency tuning $\sim$ 10 percent. 2. Control of frequency with the aid of a temperature gradient. With a temperature difference $\Delta T \approx 50^{\circ}$ C, conditions are created in the specimen analogous to those existing in specimens with a variable cross section. With an increase of ΔT the middle of the tuning band is shifted to the side of the larger frequency. With simultaneous change of the temperature and voltage, the frequency is changed by one and one-half octaves. It is possible to improve the linearity of the characteristics of the device by

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DRITOV, L. A., et al., Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanov Polytechnical Institute), 1971, 6, No 3, pp 129-134 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B209)

a choice of the form of the specimen. 3. Frequency tuning with the aid of a ferromagnetic oscillator based on iron-yttrium ferrite with a garnet structure. Graphs are presented of the dependence of the frequency of the oscillations which are generated, on the magnetic field. 4 ill. 9 ref. V. S.

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USSR

UDC 621.372.8.049.75-416

DRITOV, L. A., ZAYTSEV, P. P., LISENKO, G. A.

"Calculating the Spectrum of the Eigenvalues of Waveguide Types of Oscillations of a Microstrip Line"

Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanovsk Polytechnic Institute), Vol 6, No 3, 1971, pp 169-175 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B116)

Translation: A study is made of a line comprising an external screen of rectangular shape, a dielectric substrate and a central conductor of finite thickness. A EH type wave is propagated in the line. The spectrum of the eignevalues of the electromagnetic oscillations in this line is calculated by means of the approximate method of eigenfunctions. It is proposed that the metal conductors of the line have infinite conductivity. The line is divided into four regions for each of which the wave equations are solved. The relations are obtained by means of which it is possible to calculate microstrip lines with a rectangular cross section of the internal and external conductors on a computer. It is noted that the calculation precision depends on the order of the determinant of the system of equations. The H-type and E-type waveguides are a special case of the system of equations obtained. There is

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USSR

DRITOV, L. A., et al., Tr. Ul'yanovsk. politekhn. in-ta, Vol 6, No 3, 1971, pp 169-175

a possibility of studying the effect of the manufacturing precision (symmetry of the line design) on the critical frequency. There is 1 illustration and a 3-entry bibliography.

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USSR

UDC 621.372.8.049.75-416

DRITOV, L. A., ZAYTSEV, P. P.

"Sinusoidal MicrostripLine with a Multilayered Semiconductor Substrate"

Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanovsk Polytechnic Institute), Vol 6, No 3, 1971, pp 176-184 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B117)

Translation: The parameters of a microstripline the internal conductor of which is executed in the form of a sinusoid are calculated. The model of this line consists in a metallic screen rectangular in cross section and an n-layer semiconductor substrate. For generality of statement of the problem it is proposed that each layer of the substrate has arbitrary values of the specific conductivity, the dielectric constant and the magnetic permeability. An analysis is performed by means of the quasistationary theory of transmission lines; only a TEM wave is propagated in the line. As a result of solving the boundary problems of the Laplace-Poisson equation, relations are obtained for determining the primary (running capacitance, inductance and leakage conductance of the layers) and secondary (complex wave impedance, damping coefficient, delay time and wavelength shortening factor) parameters of the sinusoidal microstriplines. An

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R002200710013-5"

USSR

DRITOV, L. A., et al., Tr. Ul'yanovsk. politekhn. in-ta, Vol 6, No 3, 1971, pp 176-184

engineering procedure is presented for calculating the parameters of a five-layer sinusoidal microstripline. There are 2 illustrations and a 5-entry bibliography.

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USSR

UDC 621.372.8.049.75-416

DRITOV, L. A., ZAYTSEV, P. P.

"Theory and Calculation of a Five-Layer Superhigh Frequency Shielded Microstrip Line"

Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanovsk Polytechnic Institute), Vol 6, No 3, 1971, pp 205-214 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B120)

Translation: A study was made of single conductor and connected shielded strip lines comprising an external metal sheathing of rectangular cross section which prevents emission of electromagnetic energy by the line and inside which the central conductors are laid in a layered structure. The layers of the line have the following purpose: the first layer is a plastic filler serving to seal the solid circuit; the second and third layers are insulating layers made of silicon dioxide required to manufacture the elements of the solid circuit, for example, the blocking capacitors; the third and fifth layers are insulating layers made of SiO_2 preventing modulation of the conductance and loss of the dielectric properties of the semiconductor crystal -- the fourth layer. Under the assumption that a plane wave is propagated in the line, the secondary parameters of the line (complex wave impedance and propagation coefficient)

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DRITOV, L. A., et al., Tr. Ul'yanovsk. politekhn. in-ta, Vol 6, No 3, 1971, pp 205-214

were calculated for cases of cophasal and antiphase waves. The procedure used to calculate the geometric dimensions of the line is formulated. There are 3 illustrations and an 8-entry bibliography.

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USSR

UDC 621.372.8.049.75-416

LISENKO, G. A., DRITOV, L. A., ZAYTSEV, P. F., LEBEDEV, V. K., POVIKOV, O. N.

"Unshielded Bound Four-Layer Microstrip Line of Superhigh Frequency Integrated Circuits"

Tr. Ul'yanovsk. politekhn. in-ta (Works of Ul'yanovsk Polytechnic Institute), Vol 6, No 3, 1971, pp 193-199 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10B119)

Translation: A study was made of an unshielded band line comprising an external shield and central conductors of rectangular cross section arranged in a five-layer semiconductor substrate. The second, third and fifth layers are insulating layers which prevent modulation of the semiconductor conductivity; the first layer is a plastic filler. The primary parameters of the line (linear capacitance, leakage conductance and inductance) were calculated. The calculation was performed for cophasal and antiphase waves. There is 1 illustration and a 12-entry bibliography.

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USSR

UDC 669.716:621.789

DAVYDOV, V. G., DRITS, A. M., and ZAKHAROV, YE. D., All-Union Institute of Light Alloys

"Thermomechanical Treatment of Al-Zn-Mg Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 128-133

Abstract: The effect of low-temperature thermomechanical treatment (LTMT) and of high and low-temperature thermomechanical treatment (HLTMT) on tensile strength, yield strength, and elongation of Al-Zn-Mg alloys was studied. The chemical composition (%) of alloys was: 3.5 Zn, 1.3 Mg, 0.2 Mn, 0.08 Cr, 0.15 Zr, 0.3 Fe, 0.12 Si (alloy 1); 3.4, 1.5, 0.4, 0.14, 0.18, 0.3, 0.12, respectively (alloy 2); and 3.9, 1.5, 0.6, 0.19, 0.22, 0.3, 0.12, respectively (alloy 3). Hot-rolled samples 6 mm thick were water quenched at 450°C and cold-rolled (LTMT) at different time intervals, with resulting 83 and 50% deformation. The maximum tensile strength and yield strength was present in those samples which were deformed 108 hours after hot-rolling. Longer intervals between the hot-rolling and cold-deformation (up to 10 days) did not affect the mechanical properties of alloys 1 and 3, which were naturally aged for 30 days. The extent of deformation did not influence the aging kinetics. However, the tensile and yield strength values decreased by 3-5 kg/mm^2 when the cold deformation was decreased from 80 to 50%. The relative elongation was within 5.5-6.5%, regardless of the time interval between the

USSR

DAVYDOV, V. G., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 128-133

hot-rolling and cold plastic deformation, or the extent of deformation. Chemucal composition of alloys has a definite influence on the strength characteristics of samples. Increase in the tensile strength of alloys 1 and 3 deformed immediately after the water quenching was 4-5 kg/mm^2 in the presence of 83% deformation, and it amounted to 11-12 kg/mm^2 for samples deformed from 4.5 to 10 days after the water quenching. When deformation was only 50%, the increase in tensile strength amounted to 0-1 and 7-8 kg/mm^2 for the two time intervals, respectively. Increase in the yield strength exceeded by 7-8 kg/mm^2 the tensile strength during corresponding time periods. Alloys 1 and 3 which were artificially aged at 140°C and deformed by 83% immediately after the aging, 3, and 4.5 days after the aging showed a decrease in their mechanical properties. This decrease had a direct relation between the time elapsed between hardening and the cold deformation. A combination of hardening with hot deformation (HLTMT), followed by cooling in air or water and deformation 108 hours after cooling showed that the difference in strength characteristics of alloys 1 and 2 (deformed by 83%) cooled in water and air was 1-25 kg/mm^2, and it was 8-10 kg/mm^2 for alloy 3. When the cold deformation was decreased by 2-3 kg/mm^2, and by 7-8 kg/mm^2 when samples were deformed by only 50%. Tabulated data are presented in four tables.
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USSR UDC 669.71'5.018.9

NOVIKOV, I. I., ZOLOTOREVSKIY, V. S., LEVIN, L. I., DRITS, A. M.

"Effect of Manganese, Zirconium, and Chromium Additives on the Structure of Al-4% Zn-2% Mg Alloy Ingots,"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 112-117 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G194)

Translation: Light and transmission electron microscopes were used to study the structure of continuous casting ingots 92 mm in diameter from Al-4% Zn-2% Mg alloy with additives of 0.35% Mn, 0.15% Cr, 10.15% Zr in the cast and homogenized states. At a homogenization temperature of 450-550° decomposition of the supersaturated solid solution of Mn in Al takes place primarily in the interaxial spaces of the dendrite, and the solid solution of Zr in Al decomposes at these temperatures with the formation of coherent inclusions of the metastable phase. During slow cooling from the homogenization temperature, decomposition of the supersaturated solid solution of Zn and Mg in Al takes place the uniformity of which depends to a significant degree on the Fe and Si content in the alloy. 3 illustrations, 1 table, and bibliographic entries. 1/1

Aluminum and Its Alloys

USSR

UDC 669.71:539.4.014.2

DRITS, M. YE., KOROL'KOV, A. M., GUK, YU. P., GERASIMOVA, L. P., and PETROVA, E. N.

"Fracture of Aluminum Alloys Under Tensile Stresses"

Moscow, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

Translation of Introduction: Aluminum alloys are finding ever increasing use in contemporary technology. Possessing sufficiently high specific strength, good corrosion resistance, and technological properties, aluminum alloys in many fields of technology are competing with steels.

Use of high-strength aluminum alloys in large-scale heavily stressed structures operating under conditions of tensile stress actions has led to the appearance of cases of fracture under loads notably smaller than the computed yield stress of the alloys. This is causing increased interest in studying the processes of fracture of aluminum alloys.

USSR

DRITS, M. YE. et al, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

A large amount of research by domestic and foreign investigators is being devoted to the problem of fracturing of metals and alloys at the present time. Considerable attention is being paid to theoretical investigations of questions involving the mechanics of fracture. Much less research has been devoted to investigating the influence of structure and composition of materials on the processes of fracture development. However, it is precisely this question which has significance both in the development of compositions of new alloys and the technology of their production and in ensuring reliability and longevity of structures from existing and newly created alloys.

Therefore the basic problem of the present research was the study of laws governing the fracture of complexly alloyed aluminum alloys and especially the establishment of the influence of

USSR

DRITS, M. YE. et al, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

structural factors which facilitate the premature generation and development of cracks in them under the effect of tensile stresses. This permits evaluating the influence of structural features of alloys on the structural strength of finished products and selecting ways for increasing the efficiency of alloys under conditions of exploitation, and also predicting the behavior of newly developed aluminum alloys under conditions of tensile stress actions.

Thanks to the series of devices developed at the Institute of Science of Machines of the Academy of Sciences USSR under the direction of Doctor of Technical Sciences Professor M. G. Lozinskiy such as the IMASH-5, IMASH-9, IMASH-10, etcetera, the possibility has arisen for the development of new directions in the investigation of microstructure and properties of metals and alloys, which permit establishing the interrelationship between

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DRITS, M. YE. et al, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

changes in structure and applied stresses under different loading schemes in a wide range of temperatures of the investigation.

This method of investigation is the most effective for solving the problem posed and was taken as the basis for carrying out the present investigations.

The authors wish to thank V. M. Afonina and T. R. Matyukhina for help in conducting the experiments.

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DRITS, M. YE. et al, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

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USSR

DRITS, M. YE. et al., Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

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USSR

DRITS, M. YE. et al, Razrusheniye Alyuminiyevykh Splavov Pri Rastyagivayushchikh Napryazheniyakh, Izd-vo Nauka, 1973, 215 pp

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USSR

UDC 669.2/.8.017

DRITS, M. YE., Doctor of Technical Sciences, Editor

Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 200 pp

Translation of Annotation: This collection of articles is dedicated to the memory of A. M. Bochvar, the outstanding Soviet scientist and metallurgist. It contains many articles on various problems of physical metallurgy and metal-working of aluminum, magnesium, copper, and titanium alloys. Other articles discuss new alloys, phase equilibria in aluminum, manganese, copper, and titanium alloys, the strengthening mechanism of these nonferrous metals, and metal-working methods, such as smelting, casting, heat treatment, and deformation. Several articles deal with the improvement and development of industrial methods for the production of various semi-finished products from nonferrous alloys. The use of new elements for alloying the above nonferrous metals is discussed in individual papers. This book is intended for researchers, metallurgists, physical metallurgists, metal-working specialists, and machine-builders, and for teachers and students at metallurgical and machine-building higher educational institutions.

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USSR

DRITS, M. YE., Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 200 pp

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DRITS, M. YE., Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo,"Nauka," 1972, 200 pp

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DRITS, M. YE., Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 200 pp

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DRITS, M. YE., Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 200 pp

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DRITS, M. YE., Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 200 pp

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USSR

DRITS, M. YE., Metallovedeniye Tsvetnykh Metallov i Splavov (Physical Metallurgy of Nonferrous Metals and Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 200 pp

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USSR UDC 669.017:620.18

BOCHVAR, N. R., DRITS, M. Ye., and ROKHLIN, L. L., Moscow

"Some Properties of Extruded Aluminum Eutectic Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 54-59

Abstract: A study was made to evaluate the possibility of producing fibrous structures in aluminum eutectic alloys by means of extrusion and to determine their mechanical and physical properties. Two groups of alloys were studied. In the first group the volume percentage of the strengthening phase was small (5 to 15%): 1--Al-Al_3Fe, 2--Al-Al_6Mn, 3--Al-Al_3Ni, 4--Al-Al_4Ce, 5--Al-Si and 6--Al-Mg_2Si; in the second group the strengthening phase amounted to almost 50%: 7--Al-Al_2Cu, 8--Al-Al_3Mg_2; 9--Al-$MgZn_2$ and 10--Al-S(Al_2CuMg). It was established that the strengthening phase in the Al-Al_3Mg_2 alloy has a fibrous structure as a result of hot extrusion and annealing, while the strengthening phase in the other investigated systems is crushed after extrusion. The highest strength properties at room temperature in the hot-extruded state are achieved in alloys containing approximately equal volumes of the strengthening phase and matrix (Al-Al_3Mg_2, Al-Al_2Cu, Al-$MgZn_2$, and Al-Al_2CuMg), at a very low value of relative elongation. At 400°C these alloys exhibit superelasticity. The coefficient of ultrasonic damping for

USSR

BOCHVAR, N. R., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 54-59

eutectic aluminum allcys is low in the hot-extruded condition and deteriorates with annealing. 2 figures, 2 tables, 16 bibliographic references.

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Materials

USSR

UDC 629.78.002.3

DRITS, M. Ye., SVIDERSKAYA, Z. A., NIKITINA, N. I.

"New Magnesium Alloys for High Temperature Service"

V sb. Splavy tsvet. met. (Alloys of Nonferrous Metals -- Collection of Works), Moscow, "Nauka", 1972, pp 193-197 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.179)

Translation: The mechanical properties of Mg-Sc-Y-Mn alloys in the hot-pressed and the hot-rolled states were investigated at room temperature and at temperatures up to 400°. The effect of heat treatment on the properties of these alloys and the microstructure in the cast and hot-pressed states was also investigated. The strength properties of alloys of the Mg-Sc-Y-Mn considerably exceeds the properties of MA11 and MA12 alloys at temperatures up to 400° and properties of the alloy VMD1 up to 300°. At temperatures of 350-400° the strength properties of Mg-Sc-Y-Mn alloys are close to the strength properties of the VMD1 alloy. 3 ill., 3 tables, 20 ref. Resume.

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Magnesium

USSR UDC 669.018.29:669.018.672

DRITS, M. Ye., SVIDERSKAYA, Z. A., YELKIN, F. M., and TROKHOVA, V. F.

Sverkhlegkiye Konstruktsionnyye Splavy (Superlight Structural Alloys), Moscow, Izdatel'stvo "Nauka," 1972, 145 pp

Translation of Annotation: This monograph summarizes experimental studies on the structure and properties of magnesium-lithium alloys carried out in the Soviet Union and elsewhere. Systematized data are presented on the nature of the reaction of magnesium with lithium and other elements, as well as the dependence of properties of Mg-Li alloys on their composition, structure, and treatment. Information on the application of superlight alloys in various new branches of technology is also presented.

This monograph is intended for scientists and engineers at scientific research institutes, planning organization, and industrial design institutions dealing with the development, production, and application of light alloys. It may also be useful to teachers and students at higher educational institutions specializing in the metallurgy of light metals.

Translation of Table of Contents: Page

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DRITS, M. Ye., et al., Sverkhlegkiye Konstruktsionnyye Splavy, Moscow, Izdatel'stvo "Nauka," 1972, 145 pp

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USSR UDC 669.715:541.412:539.42

DRITS, M. YE., KOROL'KOV, A. M., GUK, YU. P., GERASIMOVA, L. P.

"Effect of Intermetallic Phases on the Generation of Microcracks in Binary Aluminum Alloys"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 91-95 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I628)

Translation: A study was made of the effect of intermetallic phases formed in alloying aluminum with elements of the transition groups on the generation and development of microcracks at 300° under the conditions of uniaxial extension. When estimating the effect of the excess intermetallic phase formed in the alloy on the alloy properties, not only the magnitude and nature of the intermetallic particles but also the type of diagram of state by which they are crystallized has great significance. The particles of the primary intermetallic phases formed in systems crystallizing with respect to the peritectic type fracture brittly under very low stresses and serve as a source of incipient cracks. In systems crystallized by the eutectic type, the particles of the eutectic segregations are not destroyed during deformation, and the particles of the primary intermetallic phases in the transeutectic alloys are less inclined toward brittle fracture than the primary intermetallic phases in the perieutectic systems. It

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USSR

DRITS, M. YE., et al., Struktura i svoystva legk. splavov, Moscow, Nauka Press, 1971, pp 91-95

is proposed that the formation of surface defects in particles during peritectic reaction promotes brittle fracture of the primary intermetallic phases in systems crystallized by the peritectic type. Three illustrations, 1 table, and an 8-entry bibliography.

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USSR

UDC 669.721.5'5'296'73:548.53:539.4

DRITS, M. YE., GUR'YEV, I. I., BAKHTINA, T. M.

"Recrystallization Diagram and Mechanical Properties of VMDZ Alloy as a Function of the Degree of Deformation and the Annealing Temperature"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 64-68 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I657)

Translation: A study was made of the effect of structure on the mechanical properties of sheets of the new Mg-alloy, VMDZ of the Mg-Zn-Zr-Cd-La system. It was established that the maximum strength characteristics are achieved in the presence of an unrecrystallized or partially recrystallized structure and decrease stepwise as the degree of recrystallization and grain size increase. The optimal annealing temperature is 250-300°C. The recrystallization diagram of the VMDZ alloy and the graph of the mechanical properties as a function of grain size and annealing temperature were constructed. Three illustrations and two tables.

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USSR

UDC 669.715'3'721:539.43:541.412

DRITS, M. YE., GUK, YU. P., GERASIMOVA, L. P.

"Role of Iron and Nickel in AK4-1 Aluminum Alloy"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 78-81 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I637)

Translation: A study was made of the effect of the number and shape of the particles of the Al, FeNi intermetallide compounds on the mechanical properties at room temperature and the stress-rupture strength at 300° of the primary alloy Al-2.2% Cu-1.6% Mg. The disperse particles of the Al_9FeNi phase do not in practice lower the stress-rupture strength of the alloy and essentially have no effect on its mechanical properties. The method of high temperature metallography at 300° under the conditions of uniaxial extension was used to establish that the particles of the Al_9FeNi phase block the spread of the rough slip bands in the crystal, they complicate merging of the incipient cracks into main cracks, and, at the same time, increase the time from the occurrence of the incipient cracks to total destruction of the alloy containing particles of the Al_9FeNi phase by comparison with the alloy not containing the indicated phase. The Fe and Ni forming the disperse particles of the Al_9FeNi phase in the AK4-1

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USSR

DRITS, M. YE., et al., Struktura, i svoystva legk. splavov, Moscow, Nauka Press, 1971, pp 78-81

alloy do not reduce the strength characteristics of the alloy, but increase its resistance to the process of development and spread of the cracks.
3 illustrations and a 4-entry bibliography.

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UDC 669.721.5:539.377:539.4

USSR

DRITS, M. YE., SVIDERSKAYA, Z. A., ORESHKINA, A. A.

"High Temperature Thermomechanical Treatment of Deformable Magnesium-Neodymium Alloys"

V sb Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 127-136 (from Rzh-Metallurgiya, No 4, Apr 72, Abstract No 4I701)

Translation: A study was made of the effect of high-temperature thermomechanical treatment on the mechanical properties and structure of deformable Mg-alloys alloyed with Nb: MA11(Mg-Nd-Mn-Ni) and MA12 (Mg-Nd-Zr). With a degree of deformation of 87%, the optimal conditions of high-temperature thermomechanical treatment for the MA11 alloy is heating the ingots to 490° for two hours, partial cooling and pressing at 350°, and for the MA12 alloy, heating the to 530° for two hours, partial cooling and pressing at 300°. Utilization of the indicated high-temperature thermomechanical treatment conditions by comparison with the T6 conditions used for these alloys at the present time (quenching and aging) offers significant advantages with respect to strength characteristics at room temperature and defined advantages (especially with respect to σ_T) at 250°: δ of the alloys after high-temperature thermomechanical treatment is

USSR

DRITS M. E., et al., Struktuya i scoystva legk. splavov, Moscow, Nauka Press, 1971, pp 127-136

found to be higher than after low-temperature thermomechanical treatment. A study of the structural variations taking place as a result of high-temperature thermomechanical treatment by the microstructural method, measuring the specific electrical resistance, and the x-ray method demonstrated that the observed nardening is connected with distortions of the crystal lattice of the solid solution rich with Mg and variation of the kinetics of the processes of recovery, recrystallization, and decomposition of the supersaturated solid solution. Four illustrations, one table, and a 7-entry bibliography.

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UDC 669.721:5'884:539.43

USSR

DRITS, M. YE., SVIDERSKAYA, Z. A., TROKHOVA, V. F.

"Ultralight Magnesium-Lithium Alloys Based on the Two-Phase $\alpha + \beta$ Domain"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 118-122 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I655)

Translation: The properties of two ultralight Mg-Li alloys with $\alpha + \beta$ structure are defined: 1) 7.0-9.0% Li, 4.0-6.0% Al, 2.0-4.0% Sn, 0.8-2.0% Zn, 0.15-0.5% Mn, and the rest Mg; 2) 7.0-10.0% Li, 4.0-6.0% Al, 3.0-5.0% Cd, 0.8-2.0% Zn, 0.15-0.5% Mn, and the rest Mg. With respect to strength characteristics both alloys are somewhat inferior to the Mg-Li alloys based on the α-phase, but they are significantly superior to the richer Li alloys based on the β-phase. With respect to plasticity, the alloys with $\alpha + \beta$ structure also occupy an intermediate position between the two indicated groups of alloys. The mechanical properties of the indicated alloys (σ_B 24-27 kg/mm^2, $\sigma_{0.2}$ 15-22 kg/mm^2) are quite stable. At 100°, σ_B and $\sigma_{0.2}$ were the same or even somewhat higher than for the Mg-Li alloys based on the β-phase at room temperature; σ_{100}^{100} is 5-5.5 kg/mm^2. The data on the strength characteristic and the stress-rupture strength indicate